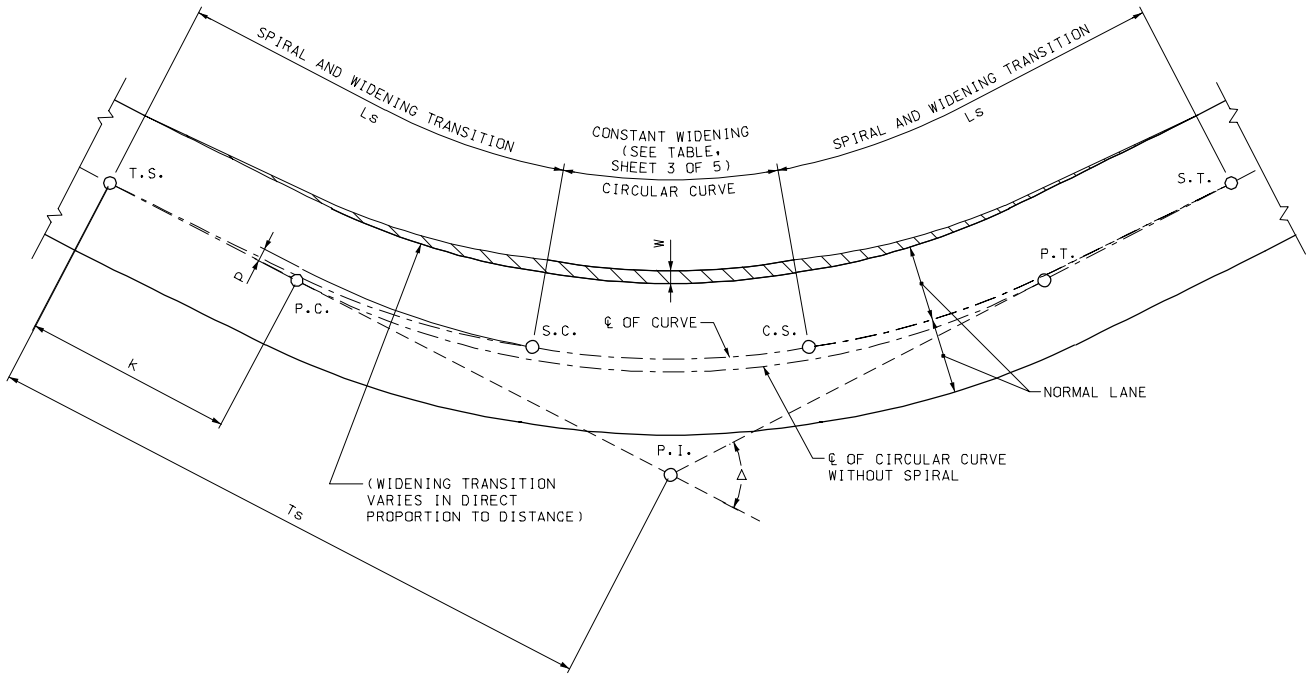
MULTILANE FACTORS FOR "L" IN ONE DIRECTION
3 LANE 1.3
4 LANE 1.7
5 LANE 2.0
6 LANE 2.3



SPIRALED CURVE AND WIDENING TRANSITIONS

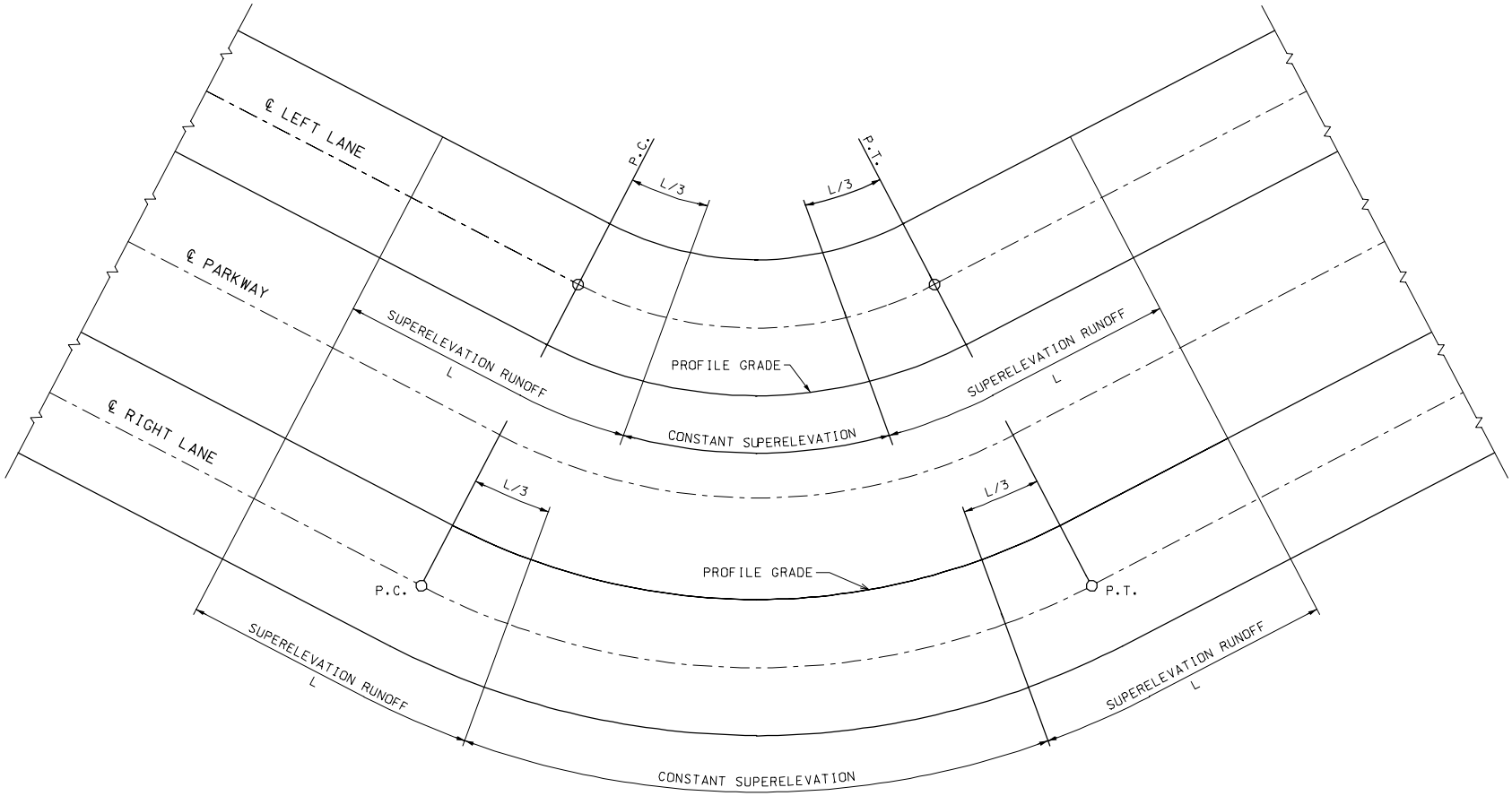
SPIRAL NOTES:

1. CURVES WITH RADIUS OF 875 m OR MORE ARE NOT TO BE SPIRALED.
2. CURVES OF ROADS WITH DESIGN TRAFFIC LESS THAN 400 ADT ARE NOT TO BE SPIRALED.
3. A PRACTICAL CONTROL FOR THE LENGTH OF SPIRAL "Ls" IS CONSIDERED TO BE THE SUPERELEVATION RUNOFF "L".
4. SPIRAL TRANSITION CURVES MAY BE STAKED BY DEFLECTION ANGLES AND CHORDS OR BY OFFSETS FROM TANGENT. THE ARC DEFINITION SHALL BE USED FOR THE CIRCULAR CURVES.

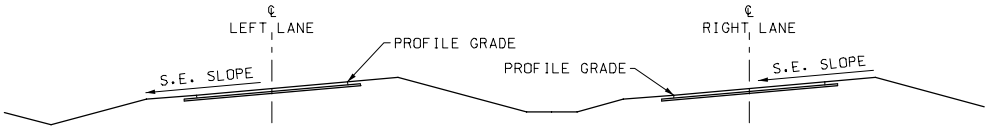
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUPERELEVATION, SPIRALS AND WIDENING
(DIVIDED HIGHWAYS)

DATE:_____ | EFFECTIVE: 04-01-2002 | M203.21J | 1/5



SUPERELEVATION RUNOUT WITHOUT SPIRALS



SECTION ON SUPERELEVATED CURVE
CURVE TO LEFT (ILLUSTRATED)

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUPERELEVATION, SPIRALS AND WIDENING
(DIVIDED HIGHWAYS)

DATE:_____ | EFFECTIVE: 04-01-2002 | M203.21J | 2/5

SUPERELEVATION AND WIDENING TABLE, e_{max} = 8%

RADIUS (m)	80 km/h				90 km/h			100 km/h		110 km/h		120 km/h	
	e%	L	W		e%	L	W	e%	L	e%	L	e%	L
			6.6	7.2			6.6						
7000	NC	0	0	0	NC	0	0	NC	0	NC	0	NC	0
5000	NC	0	0	0	NC	0	0	NC	0	NC	0	NC	0
3000	NC	0	0	0	NC	0	0	RC	25	2.1	28	2.4	34
2500	NC	0	0	0	RC	23	0	2.1	26	2.4	32	2.9	41
2000	RC	22	0	0	2.2	25	0	2.6	32	3.0	40	3.5	50
1500	2.4	26	0	0	2.8	32	0	3.4	42	3.9	51	4.6	65
1400	2.5	27	0	0	3.0	34	0	3.6	44	4.1	54	4.9	70
1300	2.7	29	0	0	3.2	37	0	3.8	47	4.4	58	5.2	74
1200	2.9	31	0	0	3.4	39	0	4.1	50	4.7	62	5.6	80
1000	3.4	37	0	0	4.0	46	0	4.8	59	5.5	72	6.5	92
900	3.7	40	0	0	4.4	51	0	5.2	64	6.0	79	7.1	101
800	4.1	44	0	0	4.8	55	0	5.7	70	6.5	87	7.6	108
700	4.5	49	0	0	5.3	61	0	6.3	77	7.2	95	8.0	114
600	5.1	55	0	0	6.0	69	0.7	6.9	85	7.7	101	MIN RADIUS = 665 m	
500	5.8	63	0.7	0	6.7	77	0.7	7.6	93	8.0	105		
400	6.6	71	0.7	0	7.5	86	0.8	8.0	98	MIN RADIUS = 500 m			
300	7.6	82	0.8	0	MIN RADIUS = 305 m			MIN RADIUS = 395 m					
250	7.9	85	0.9	0.6									
MIN RADIUS = 230 m													

SUPERELEVATION AND WIDENING TABLE, e_{max} = 4%

RADIUS (m)	80 km/h				90 km/h			100 km/h		
	e%	L	W		e%	L	W	e%	L	W
			6.6	7.2			6.6			6.6
5000	NC	0	0	0	NC	0	0	NC	0	0
3000	NC	0	0	0	NC	0	0	RC	25	0
2500	NC	0	0	0	RC	23	0	RC	25	0
2000	RC	22	0	0	RC	23	0	2.2	27	0
1500	RC	22	0	0	2.3	25	0	2.6	32	0
1400	2.1	23	0	0	2.4	28	0	2.7	33	0
1300	2.2	24	0	0	2.5	29	0	2.8	34	0
1200	2.3	25	0	0	2.6	30	0	2.9	36	0
1000	2.5	27	0	0	2.8	32	0	3.2	39	0
900	2.7	29	0	0	3.0	34	0	3.4	42	0.6
800	2.8	30	0	0	3.2	37	0.6	3.5	43	0.6
700	3.0	32	0.6	0	3.4	39	0.6	3.7	45	0.7
600	3.2	35	0.6	0	3.6	41	0.7	3.9	48	0.7
500	3.5	38	0.7	0	3.8	44	0.8	4.0	49	0.8
400	3.7	40	0.8	0	4.0	46	0.9	MIN RADIUS = 490 m		
300	4.0	43	1.0	0.7	MIN RADIUS = 375 m					
MIN RADIUS = 280 m										

TABLE NOTES:

1) "NC" DENOTES NORMAL CROSS SLOPE.
2) "RC" DENOTES REMOVE ADVERSE CROSS SLOPE, SUPERELEVATE AT NORMAL CROSS SLOPE.
3) "e" DENOTES THE SUPERELEVATION IN PERCENT (%).
4) "L" THE LENGTH OF SUPERELEVATION RUNOFF AND WIDENING TRANSITION IN METERS FOR A 4 LANE DIVIDED HIGHWAY.
5) "W" THE WIDENING IN METERS FOR SURFACING AT INSIDE SHOULDERS.
6) VALUE FOR A RADIUS NOT SHOWN IN ABOVE TABLE SHALL BE IDENTICAL TO THOSE FOR THE NEAREST TABULATED RADIUS. IN CASE OF TIE, USE VALUES OF NEXT LARGER RADIUS.

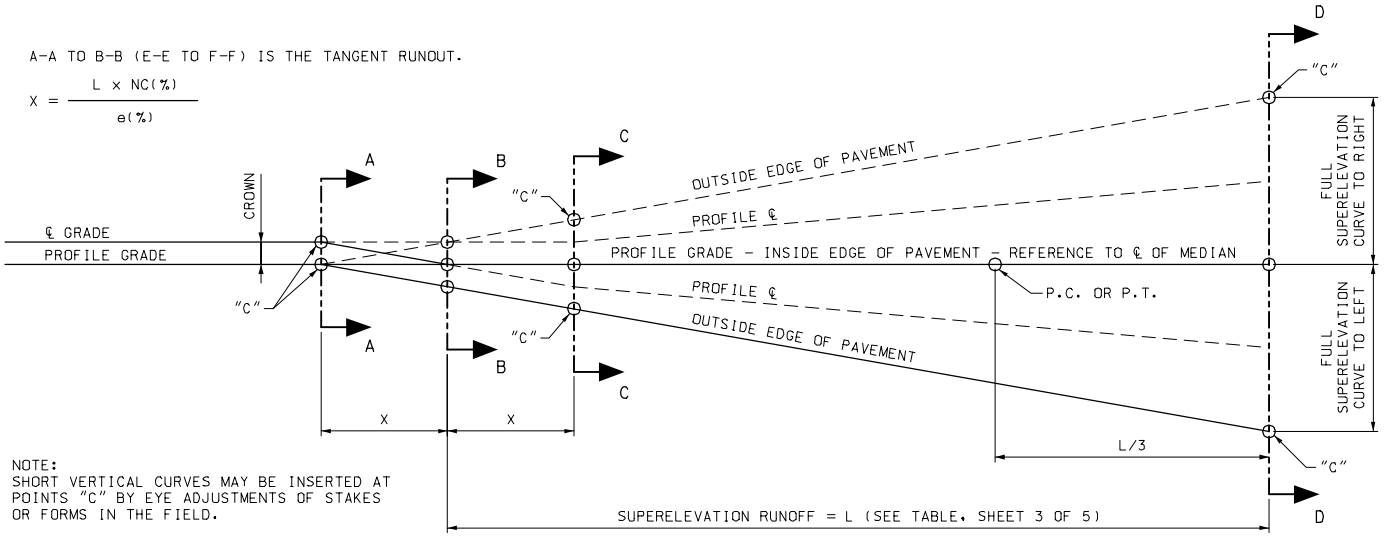
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUPERELEVATION, SPIRALS AND WIDENING
(DIVIDED HIGHWAYS)

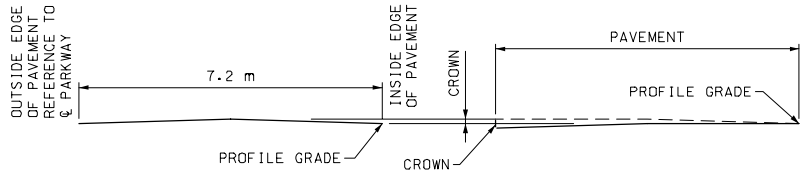
DATE:_____ | EFFECTIVE: 04-01-2002 | M203.21J | 3/5

A-A TO B-B (E-E TO F-F) IS THE TANGENT RUNOUT.

$$X = \frac{L \times NC(\%)}{e(\%)}$$



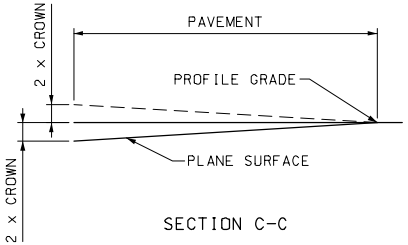
NOTE:
SHORT VERTICAL CURVES MAY BE INSERTED AT POINTS "C" BY EYE ADJUSTMENTS OF STAKES OR FORMS IN THE FIELD.



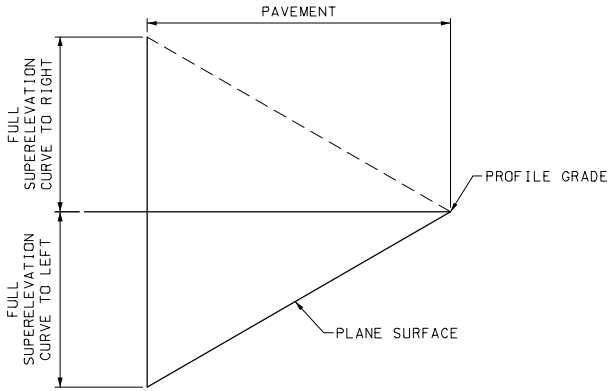
SECTION A-A

SECTION B-B

SOLID LINES ARE FOR CURVES TO LEFT
DASHED LINES ARE FOR CURVES TO RIGHT



SECTION C-C



SECTION D-D

METHOD OF ATTAINING SUPERELEVATION
(LEFT LANE)

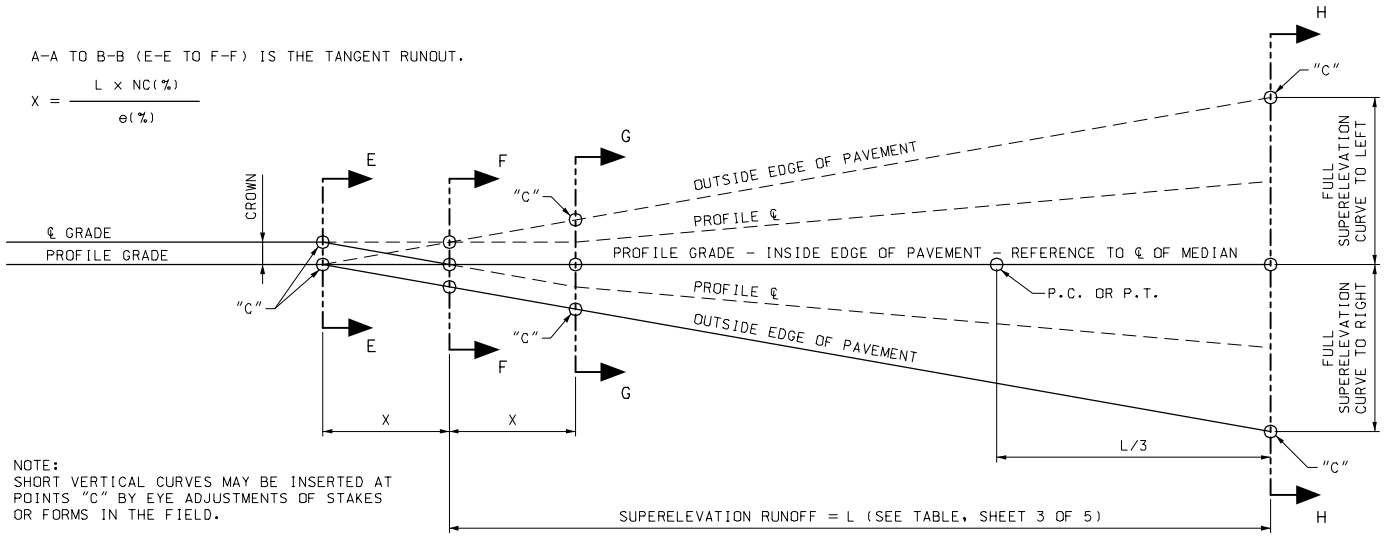
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUPERELEVATION, SPIRALS AND WIDENING
(DIVIDED HIGHWAYS)

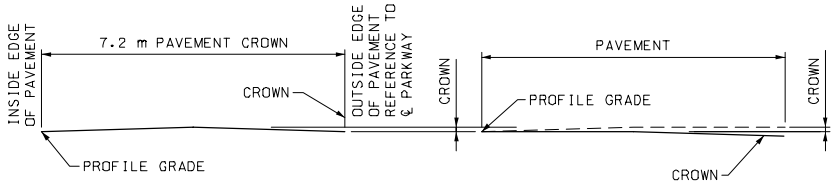
DATE:_____ | EFFECTIVE: 04-01-2002 | M203.21J | 4/5

A-A TO B-B (E-E TO F-F) IS THE TANGENT RUNOUT.

$$X = \frac{L \times NC(\%)}{e(\%)}$$



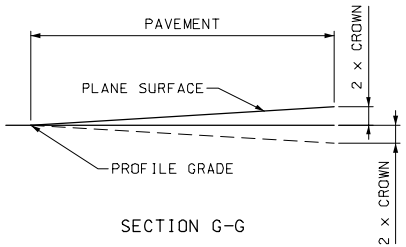
NOTE:
SHORT VERTICAL CURVES MAY BE INSERTED AT POINTS "C" BY EYE ADJUSTMENTS OF STAKES OR FORMS IN THE FIELD.



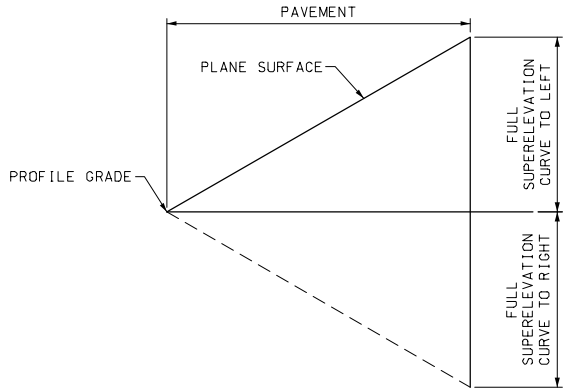
SECTION E-E

SECTION F-F

SOLID LINES ARE FOR CURVES TO LEFT
DASHED LINES ARE FOR CURVES TO RIGHT



SECTION G-G



SECTION H-H

METHOD OF ATTAINING SUPERELEVATION
(RIGHT LANE)

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUPERELEVATION, SPIRALS AND WIDENING
(DIVIDED HIGHWAYS)

DATE:_____ | EFFECTIVE: 04-01-2002 | M203.21J | 5/5